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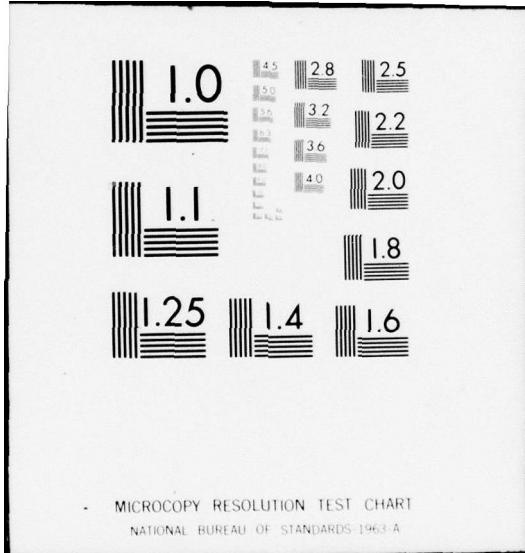
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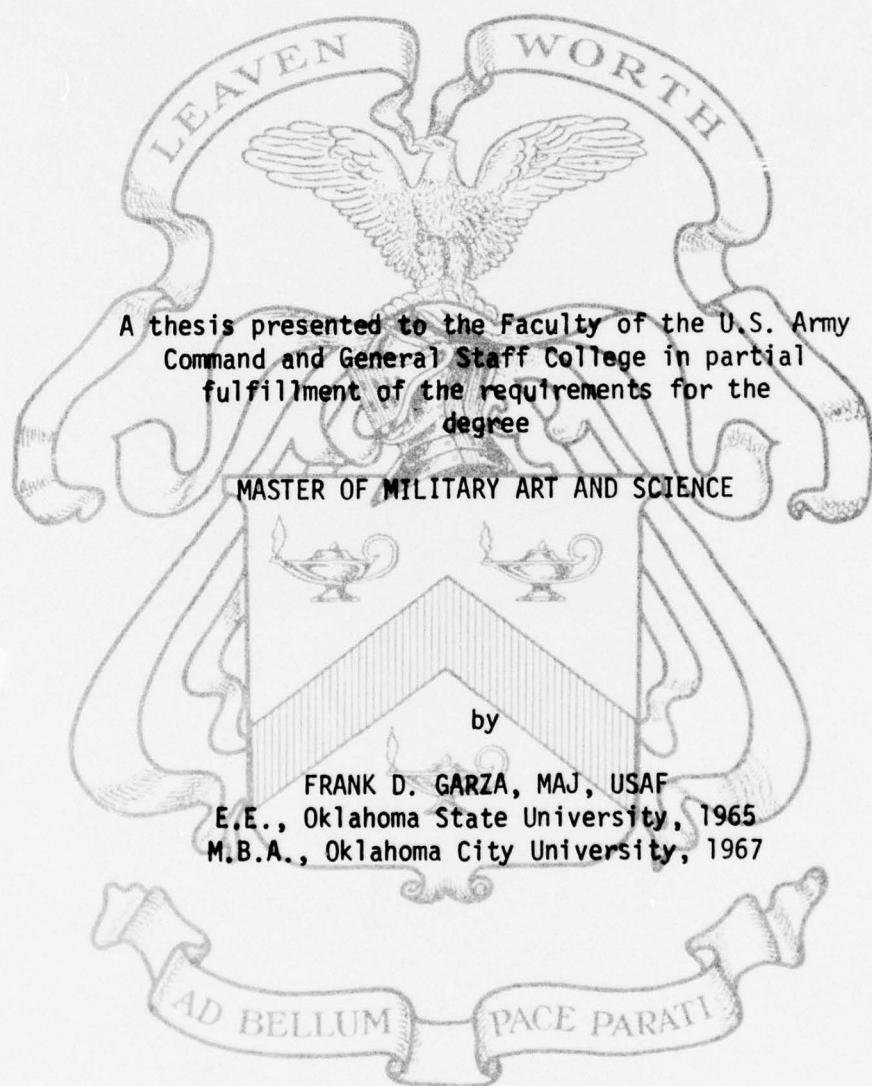
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The Soviet forces in Europe have dramatically modernized their equipment and are the most heavily armed in the world. The United States tactical air force has responded with increased emphasis on readiness and realistic training. In particular, Red Flag and the aggressor squadrons are two of the most innovative and productive programs that have been developed for the fighter force. This thesis addresses the relevancy of the training by focusing on the Soviet threat and current fighter force training doctrine. A very limited "first battle" scenario in the European theater is presented to analyze the training versus the threat.

The general conclusion of this study is that the current combat training of United States tactical fighter forces is excellent. The recent emphasis on readiness had definitely made the training relevant to the threat. There are, however, several areas that require additional emphasis and improvement. This thesis proposes specific recommendations in the areas of air superiority, the fighter/forward air controller/strike control and reconnaissance concept, combat deployments, and night operations.

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FIGHTER FORCE TRAINING FOR THE EUROPEAN SCENARIO



Fort Leavenworth, Kansas
1977

THESIS APPROVAL PAGE

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The opinions and conclusions expressed herein are those of the individual student author and do not necessarily represent the views of either the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

The Soviet forces in Europe have dramatically modernized their equipment and are the most heavily armed in the world. The United States tactical air force has responded with increased emphasis on readiness and realistic training. In particular, Red Flag and the aggressor squadrons are two of the most innovative and productive programs that have been developed for the fighter force. This thesis addresses the relevancy of the training by focusing on the Soviet threat and current fighter force training doctrine. A very limited "first battle" scenario in the European theater is presented to analyze the training versus the threat.

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CHAPTER I

INTRODUCTION

Combat training for the tactical fighter force has recently received significant emphasis. The purpose of this thesis is to determine the adequacy of current combat training for the fighter force as applied to a European battle scenario.

If the Yom Kippur War in 1973 is a partial reflection of current Soviet tactics, the "First Battle" in Europe will greatly challenge the capability of the friendly fighter force. Assuming a sudden and massive Warsaw Pact armor attack under a highly effective SAM/AAA umbrella, how much can friendly fighter forces contribute to the battle (air superiority, close air support interdiction, etc.)?

Aircraft, munitions, and training are three essential contributors when one considers effectiveness in combat. Aircraft and weapons are given quantities in the combat equation that are determined by the state of the art during a specific time period. In other words, a force is going to fight with what it has. Training is a variable that can be exploited in preparation for the battle. Realistic combat training that includes current threats and emphasizes initiative and innovative tactics can become the decisive combat multiplier. This study focuses on the threat, current fighter training doctrine, and the European

battlefield.

Background

Dr. James R. Schlesinger, a former Secretary of Defense, noted: "As the events of the past decade have demonstrated, the strategic impasse has driven armed conflict downward into the tactical arena."¹ However, due to previous emphasis on strategic nuclear forces to deter all forms of conflict, the United States tactical forces were slow to develop their full conventional potential. The deficiencies in aircraft, munitions, and training were highlighted during both the Korean and Southeast Asian conflicts. After the Korean conflict, the tactical air forces reverted to a secondary status and very little was done to benefit from the lessons learned. Thus, history repeated itself when the fighter force entered the Southeast Asian conflict with deficiencies in the same areas.

Tactical leaders recognized the problems and aggressively sought to correct the deficiencies throughout the Southeast Asian conflict. As a result, the fighter force relearned some valuable lessons that are now being expanded from theory to practical application. The emphasis on mission-oriented aircraft (F-15, F-16, A-10, EF-111, F-4G, and E-3A), precision weapons, and realistic training programs evolved from the Southeast Asian conflict and received further impetus from the Yom Kippur War and the Soviet buildup in Europe.

¹James R. Schlesinger, "In My Opinion," *Air University Review*, November-December 1975, pp. 72-73.

During the Southeast Asian conflict, the U.S. Air Force (USAF) maintained a kill:loss ratio of 2.25:1 in air-to-air engagements between 1965 and 1968. The ratio in the 1968 "Rolling Thunder" and 1972 Line-backer operations was not any better. In fact, the kill ratio during the period 1970-1973 dropped to 2.00:1.² One specific problem was the lack of concentrated training in air-to-air combat by fighter pilots who flew the multipurpose F-4. The fighter pilot became a jack-of-all-trades and was superior in none.

Tactical Air Command (TAC) recognized the air combat training deficiency and established the 64th Fighter Weapon Squadron, "The Aggressors." Its commander, Lieutenant Colonel Jerry H. Nabors, aptly described its purpose before a subcommittee of the Senate Armed Services Committee in March 1975, when he said:

During the Southeast Asia conflict, an extensive study was accomplished to reconstruct each MIG encounter that occurred in the war. The objective was to determine the reasons for success or failure in the encounter and to identify problem areas that could be resolved to provide the United States with a better fighting force.

The most common problem found could be summed up in the words "insufficient training and experience in air-to-air combat." . . .

. . . Also, enemy tactics had never been flown in training scenarios. An urgent need existed for an air-to-air training program using aircraft with comparable characteristics of the potential enemy aircraft and flown by pilots who had extensively studied the enemy fighter pilot and were skilled in his tactics and fighting philosophy.³

²Philippe Grasset, "Dissimilar Air Combat Training," International Defense Review 8, No. 6 (December 1975):823-27.

³U.S., Congress, Committee on Armed Services, Subcommittee on

The well-trained air superiority pilot now has the sophisticated F-15 Eagle, which is presently being integrated into the active inventory. The current concept calls for the F-15 specialized in air-to-air and the F-16 to be the swing force utilized in both air-to-air and air-to-ground, depending on the tactical mission. The combination of specialized air superiority aircraft and air combat qualified aircrews will contribute to the Air Force's primary mission "to gain and maintain general air supremacy."⁴

During the Southeast Asian conflict the USAF also recognized the difficulties of a fighter pilot's maintaining a high level of proficiency in several missions. The Designed Operational Capability (DOC) Concept was developed. The DOC is the mission for which a unit is organized or designed.⁵ For example, an air-to-air fighter squadron will have an air superiority DOC as its primary mission. Secondary DOCS may be assigned, but the unit would require additional training in the secondary DOC prior to combat employment. The new concept allows the fighter pilot to devote more attention to specific skills.

The Yom Kippur War validated TAC's emphasis on electronic warfare and threat awareness. The Arabs applied Soviet tactics in using

Tactical Air Power, TAC Air Programs for Fiscal Year 1976 (11 March 1975), [pp. 2-3].

⁴ Department of Defense, "Air Superiority, Our Future Depends On It," USAF Aerospace Speech Series, 76-1 (February 1976), p. 1.

⁵ Department of the Air Force, F-4 Aircrew Training (Tactical Fighter), AFM 51-34 (26 April 1976), p. 1.

extensive SAM/AAA coverage for the rear area and the attacking force.

The Israelis compared the situation to the phalangial tactics employed by Roman Legions under Marius in 50 B.C. It was estimated that during the first week of the war, Israel lost 78 aircraft, almost all to SAMs and conventional anti-aircraft fire.⁶

The need for battlefield surveillance, suppression capability, close air support, and balanced, mutually supporting forces was highlighted. The USAF is pursuing this line with AWACS (Airborne Warning and Control System), the F-4G Weasel, the E-3A, the EF-111, and the A-10 aircraft. The challenge is combining the forces in packages to concentrate power at the right point in the battle. That means maximum training for all elements of the fighter force.

Secretary of Defense Donald H. Rumsfeld termed the NATO/Warsaw Pact frontier in Central Europe

one of the most heavily armed in the world. . . . [T]he Soviet forces deployed in Eastern Europe are much larger than would be justified for defense or even the most repressive kind of occupation. To the best of our knowledge, moreover, the doctrine which governs these forces is offensive in spirit and inspired by the blitzkrieg tactics of World War II.⁷

Tactical Air Command is fully aware of the Soviet threat in Europe and the obvious Soviet influence on Arab tactics employed in 1973. The United States accent on readiness and employment has been

⁶"Israeli Aircraft, Arab SAMs in Key Battle," Aviation Week & Space Technology, 22 October 1973, pp. 14-17.

⁷Edgar Ulsamer, "USAF's New Soviet Awareness Programs," Air Force Magazine, May 1976, p. 38.

greatly emphasized in operational readiness inspections and Red Flag exercises. Red Flag is an exercise that provides realistic combat training for squadron size units. The units periodically deploy to Nellis Air Force Base, Nevada, to operate in a very real "simulated" air and surface threat environment. General Robert T. Dixon, Commander, TAC, said:

Readiness will be the key to our success--perhaps to our national survival. We are working hard to maintain and improve our readiness to meet today's and tomorrow's challenges.⁸

Statement of the Problem

Is the current combat training of United States tactical fighter forces relevant to the Soviet threat and appropriate to successfully engage Soviet forces in the event of a sudden and massive attack in Europe? To answer this question, present air superiority and air-to-ground training must be reviewed in relation to the Soviet threat in Europe. The current training doctrine is satisfactory if it provides for readiness, survivability, and the real capacity to engage the Soviet land and air forces.

Purpose

This study was undertaken to determine if current training programs for the fighter force are adequate for a possible confrontation with the Soviet Union in Europe. As former U.S. Ambassador to the

⁸James Glaza, "Readiness Through Realism," Air Reserves, August-September 1976, pp. 8-9.

Soviet Union Foy D. Kohler stated:

Americans tend to forget the feeling of humiliation engendered in the Kremlin by US defiance of Khrushchev's threats in its intervention in Lebanon in 1958; in its defense of Berlin in 1961-1962; and in the forced withdrawal of Soviet missiles from Cuba in 1962. These reverses not only brought about a realization in the Kremlin that bluff based on potential doesn't work, but brought about a resolve on the part of Khrushchev's more sober successors to achieve a global position where the US, rather than the Soviet Union, would be the party obliged to be passive or to back down in future conflict situations. Consequently, the Soviets set about achieving such a position with an unpublicized and unprecedented massive buildup of strategic capabilities as well as conventional ground and naval forces.⁹

Any deficiency in training that affects TAC's readiness can be a costly situation.

Methodology

The methodology includes a review of Soviet tactics and current United States fighter force training. Finally, a mixture of both of the concepts in a European combat scenario is presented to determine the adequacy of current training in the United States.

Chapter II reviews literature of Soviet tactics and sets the scene in Europe by viewing the present order of battle. A look is taken at the application of Soviet tactics, directly and indirectly, in various conflicts. The Yom Kippur War is emphasized because of its recent nature. The objective is to present the Soviet Union's combined arms concept and view its employment.

⁹ Foy D. Kohler, "War Survival in Soviet Strategy," Air Force Magazine, September 1976, p. 91.

Chapter III examines the current United States tactical fighter force combat training. Training doctrine and various methods of preparing the force are reviewed. The training considered is primarily that type received as a continuation after graduation from a basic fighter upgrade course.

Chapter IV is the heart of the study. It mixes the concepts from Chapters II and III and proposes a scenario of the "First Battle" in Europe. The European arena was selected because of the concentration of Soviet forces, the highly sophisticated SAM/AAA threat, and the difficult combination of varied terrain and marginal weather. The battle is limited to a front in the Fulda gap. Soviet tactics are employed and the friendly fighter force responds as necessary to counter the threat.

Chapter V provides a summary, conclusions, and recommendations. A conclusion is made regarding the adequacy of fighter force training in the United States. Based on the study's conclusions, recommendations for improvements are also presented.

Assumptions and Limitations

It is recognized that the "First Battle" with the Soviet Union could actually take place in any part of the world. In fact, the Soviet strategy for the future could rely on the more indirect approach of supporting insurgencies and limited wars. However, for the purpose of this study, it is assumed that the Soviet Union will attack with minimum

warning through the European Fulda gap. The northern approach, which is not considered, is another very real possibility that presents different problems. It is also assumed that the new United States aircraft presently being integrated into the inventory will be available for the "First Battle."

This study is limited to unclassified sources. The battle scenario is limited to a conventional war and is mainly concerned with Soviet forces. The Warsaw Pact's specific capabilities are not considered. The conceptual employment of United States tactical fighter forces includes the missions of close air support, air interdiction, air superiority, and strike control and reconnaissance (SCAR). Individual flight tactics are not considered. Emphasis is on the employment force package. The training of the fighter force is limited to the continuation training after graduation from the basic fighter course.

Glossary of Terms

The definitions below were extracted from military publications for the purpose of establishing a common point of reference for this study.

Aggressors, The: The 64th Fighter Weapons Squadron stationed at Nellis Air Force Base, Nevada. Two other recently formed squadrons are at the Royal Air Force, Alconbury, England, and Clark Air Base, the Philippines. Their primary mission is to provide resources and expertise in dissimilar air combat training.

Air interdiction: Air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces. These operations are conducted at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required.

Air superiority: That degree of dominance in the air battle of one force over another which permits the conduct of operations by the former and its related land, sea, and air forces at a given time and place without prohibitive interference by the opposing force.

Airborne Warning and Control System (AWACS): A new system in the E-3A aircraft that is capable of all-weather, long-range, high- or low-level surveillance of all air vehicles, manned or unmanned, above all kinds of terrain.

Anti-aircraft artillery (AAA): Weapons and equipment for actively combating air targets from the ground. Weapons are classed as Light, 20-57 mm; Medium, 58-99 mm; and Heavy, 100 mm or greater.

Close air support (CAS): Air attacks against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces. Air missions flown between the forward edge of the battle and the fire support coordination line.

Designed Operational Capability (DOC): Mission for which a unit was organized or designed.

Fire support coordination line (FSCL): An imaginary line arranged, if possible, to follow well-defined geographical features, prescribed by the troop commander and coordinated with appropriate supporting commanders, forward of which supporting forces may attack targets without danger or reference to the ground forces. Behind this line the attack of targets by forces not under the control of the troop commander must be coordinated with the appropriate troop commander.

Forward air controller (FAC): An officer (aviator/pilot) member of the tactical air control party who, from a forward ground or airborne position, controls aircraft that are engaged in close air support of ground troops.

Forward edge of the battle area (FEBA): The foremost limits of a series of areas in which ground combat units are deployed, excluding the areas in which the covering or screening forces are operating, designated to coordinate fire support, the positioning of forces, or the maneuver of units.

Maverick: Air-to-surface missile with a self-homing electro-optical guidance system.

Red Flag: Nickname of an exercise used at Nellis Air Force Base, Nevada, to provide more realistic combat training. A squadron size unit and its support elements deploy for several weeks to operate in a combined air and surface threat environment.

Strike control and reconnaissance (SCAR): Aircraft, such as the RF-4C, that are employed to perform reconnaissance, surveillance, and

strike control in support of the air interdiction role.

Surface-to-air missile (SAM): A surface launched missile that is designed to operate against a target above the surface.

Wild Weasel: An aircraft system, such as the F-4G, with sophisticated electronic warfare equipment that enables it to detect, identify, and locate enemy radars and to direct against them weapons for their destruction or suppression.

CHAPTER II

HISTORICAL REVIEW

The present Soviet tactics did not suddenly emerge as a radical departure from the past. Instead, Soviet tactical doctrine has resulted from an evolutionary process that centered on the principles of mass, firepower, and shock. The Soviets use technology, applied to weaponry, to increase the leverage of these principles. The constant theme of maintaining Soviet numerical superiority and striving to attain technological parity is evident throughout Soviet history. The Soviets have learned through combat experience that they must have technological parity to bring their mass and firepower to bear decisively. This chapter looks at Soviet tactical doctrine as it evolved, as it is espoused in Soviet literature, and as it was applied in the Yom Kippur War. The Soviet order of battle in Europe as it reflects the emphasis on current Soviet tactical doctrine is also reviewed.

Soviet Tactics

Present Soviet tactics have chiefly evolved from German influence prior to World War II and from combat experience gained in several conflicts. Involvement in conflicts of limited scope enabled the Soviets to improve their weaponry, to gain limited combat experience,

and to develop a tactical doctrine. The improved tactics and technology are eventually tested in large scale conflicts. The Spanish Civil War, the Russo-Japanese conflict, the invasion of Finland, World War II, the Korean conflict, the Vietnam conflict, and the Yom Kippur War are a few examples.

The Germans were particularly influential in the development of Soviet tactics. The Russians and Germans had a pact, from 1922 to 1935, that provided the Soviets with technical aid and permitted numerous Soviet officers to attend the German advanced military school in Berlin.¹ The Germans also provided a military mission to help structure and assist the Russian Army. During this period the Germans were developing the concept of blitzkrieg warfare, a coordinated and massive air and ground attack aimed at a breakthrough.² It was inevitable that Soviet doctrine would be very similar to that of the Germans.

In 1936 the Soviets sent 200 pilots and approximately 1,500 aircraft to assist the anti-Franco forces in Spain. The involvement was very limited, but it permitted the Soviets to gain combat experience and develop air tactics. The Soviets enjoyed some initial successes, but they were not able to maintain a viable force due to maintenance and logistical problems. They also lacked credible tactical expertise and

¹Herbert Molloy Mason, Jr., The Rise of the Luftwaffe (New York: Ballantine Books, 1975), p. 85.

²Richard E. Stockwell, Soviet Air Power (New York: Pageant Press, Inc., 1956), p. 19.

withdrew their force when the Germans entered the conflict with superior ME-109s that were manned by well-trained aircrews.³ As a result, the Soviets placed increased emphasis on tactical aviation, to include equipment, training, and tactics.

The Russo-Japanese conflict, 1937-1939, was a testing ground of increased scope for Soviet tactical doctrine. Large armies supported by tactical fighters engaged in heavy fighting over a wide front. Fire-power was improved by massing more artillery tubes and using tactical airpower to directly support the ground units. The concept of the combined arms army was developed. The air superiority mission was not particularly successful and was primarily aimed at protecting ground support aircraft. Neither army seemed able to gain an advantage in numbers or technology, thus preventing a decisive outcome.

In 1939 the Soviets invaded Finland with large land and air armies. Air superiority was immediately attained since the Finns lacked a substantial air force. The Soviet land campaign eventually faltered because of logistical problems. In 1940 the Russians renewed their offensive with 54 divisions that were supported by massive air and artillery firepower. The Soviets achieved their objective, but losses were estimated at 200,000 killed and 400,000 wounded. The Finns lost 25,000 killed and 43,000 wounded.⁴ Again, the Soviets relied on sheer

³Asher Lee, The Soviet Air Force (New York: John Day Company, 1962), pp. 40-42.

⁴Stephen B. Patrick, "The East Is Red," Strategy and Tactics, January-February 1974, pp. 4-19.

numbers and massive firepower to overwhelm an enemy.

On 22 June 1941 Germany attacked the Soviets in accordance with Operation Barbarossa. The air order of battle on the Eastern Front rarely exceeded the ratio of 2,000 German aircraft against 10,000 to 15,000 Soviet fighters. However, the Germans were successful against such odds because of equipment, tactics, and training. By 1943 the Soviets had narrowed the technological gap with better equipment and were able to apply superior numbers to their advantage. They applied the principle of mass on the ground and in the air. The objective was to wear down and finally overwhelm an enemy. According to Günther Rall, a German ace:

Tactics were different in Russia. The Russian pilots liked to fly in large masses. And at the beginning of that war we had experience, and it was easy. Later it became much more difficult. They didn't have the individual initiative of pilots we fought on the Western front. But the Red Banner Guard regiments were very good. Their fighters were painted red up to the cockpit and they liked dogfighting. Our 109s were much better at high altitude, especially in the first part of the war. We could shoot down fifty planes in a day and the next day the same numbers would come again.⁵

During the latter part of the war the Soviets dramatically increased the number of tanks, artillery, and aircraft committed to the Eastern front. At one time they had four air armies of approximately 10,000 aircraft in support of the ground army. The Soviet air armies improved their mobility and were able to transfer combat power to critical sectors as needed. During breakthrough attacks, they also improved

⁵Edward H. Sims, Fighter Tactics and Strategy (New York: Harper and Row, 1972), p. 147.

tank and aircraft coordination. As Colonel A. A. Sidorenko stated:

. . . The most important reasons for the increase in the rates of attack and the depth of the operations were the increase in the number of tanks and their mass employment on the decisive directions, the increase in the number of artillery and its mobility, the strengthening of aviation and the increase in the quantity of motor transport among the troops, and the improvement in methods of attack.⁶

In addition to using the combined arms concept, the Soviets learned to mass over a narrow front. According to Colonel V. Ye Savkin:

In the most important offensive operations of 1944-45 one division had 1.6-0.7 km of front on the axis of main attack. There were 130-250 guns and mortars, 25-123 tanks and self-propelled artillery pieces, including up to 30 NPP tanks per kilometer of front.⁷

By the end of World War II, the Soviets had developed a tactical employment concept that included all combat arms. Tactical aviation, which was built around the land army, required further expansion and refinement. On 25 June 1950, the Korean conflict provided the opportunity. As in the Spanish Civil War, the Russians capitalized on the opportunity to test equipment, develop tactics, and train personnel. The commitment was tactical aviation units, primarily Russian squadrons, that rotated from Manchuria. In fact, one Russian division was commanded by Colonel Ivan Kozhedub, top Soviet ace of World War II. Of 925 MIG-15s committed in Korea, Russians manned 400, Chinese manned 400,

⁶A. A. Sidorenko, The Offensive (A Soviet View) (Washington: Government Printing Office, 1970), p. 11.

⁷V. Ye Savkin, The Basic Principles of Operational Art and Tactics, trans. U.S. Air Force (Washington: Government Printing Office, 1972), p. 219.

and North Koreans manned 125. The Russians had difficulties with American pilots as they did with the Germans in World War II. The Russians utilized ground radar with a centralized control system that permitted very little initiative. The United States successful kill ratio of 1:1 was largely attributed to training and individual initiative.⁸ The conflict did allow the Russians to confirm the capabilities of the MIG-15 and improve their command and control system.

In Vietnam, just as in Korea, United States pilots engaged Russian aircraft and ground defenses. The Russians were unable to commit large forces, but they did reinforce their air defense concepts and narrow the technological gap. Ground defenses were extremely sophisticated and the enemy learned to integrate the air and land defense system very effectively. For that reason and several of the fighter force's making, the United States maintained a kill ratio of only 2:1. As in Korea, ground radar closely controlled the enemy pilots. The important factor is that the Soviets were developing a closely integrated air and ground defensive system for employment with a land army. As Colonel Sidorenko concluded:

The goal of the attack--total defeat of the enemy in short periods of time and the seizure of important areas--now is achieved by the destruction of the main enemy groupings and his means of mass destruction, primarily nuclear weapons, and also by the powerful fire of other means, the swift attack of tank and motorized rifle troops to a great depth, in coordination with aviation and airborne landings, and by their bold movement to the flanks and rear of the enemy.⁹

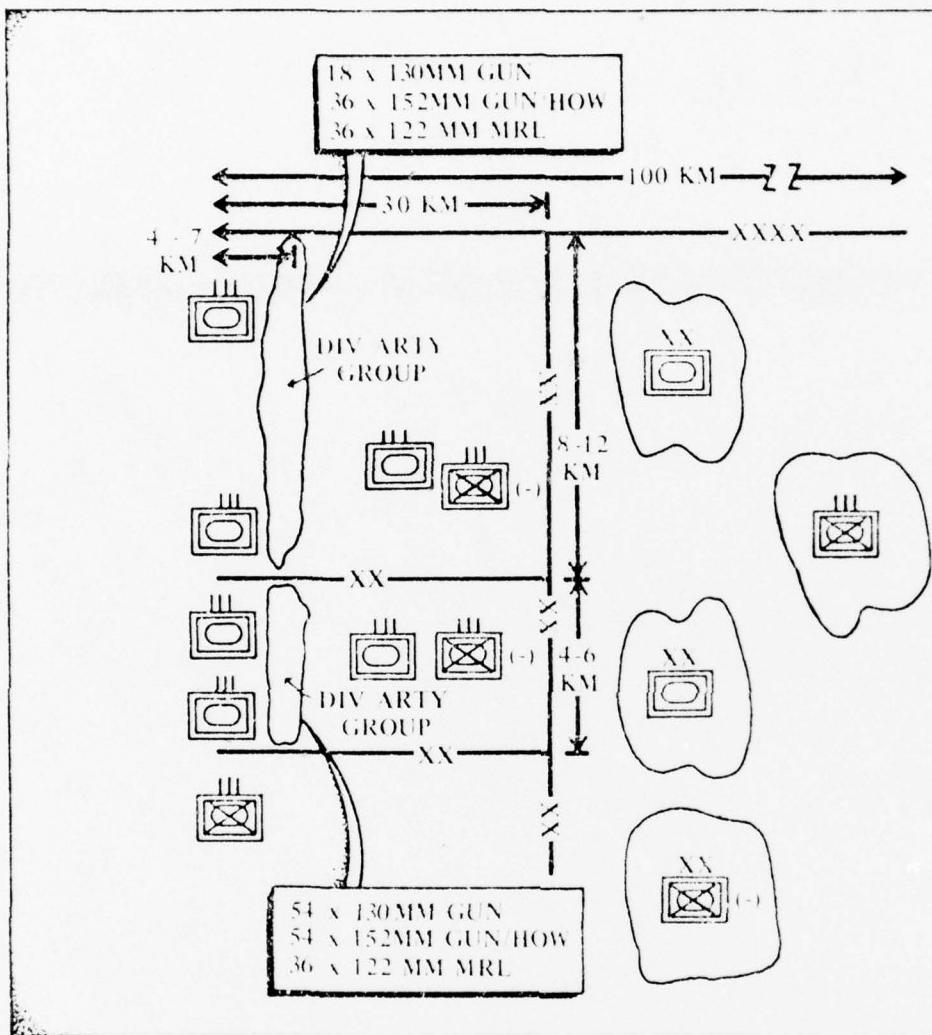
⁸Stockwell, pp. 51-55.

⁹Sidorenko, p. 221.

To apply the principle of a large scale offensive, the Soviets employ a front organization. The front is a typical Soviet wartime organization employed over a zone of action that is 200 km wide and 180 km deep. It has no set organization, but it might contain several combined arms armies, a tank army, a tactical air army, one or more artillery divisions, an airborne division, and SAM regiments. According to Soviet doctrine, the front offensive would contain no more than two main attacks supported by secondary attacks. Forces are echeloned into the first, second, and reserve echelons, with two-thirds of the force committed to the first echelon. The mission of the front consists of objectives 550 km deep and is normally accomplished in three phases. The first phase, the breakthrough (three to five days), is aimed at the destruction of immediate enemy forces, the corps reserve, and creating a gap 20 km wide and 40 km deep for the exploitation force. The second phase, the exploitation (four to eight days), uses tanks for shock and maneuver to penetrate the gap and destroy strategic reserves 250 km deep. The third phase, the pursuit (eight days), focuses on the destruction of enemy forces and drives 500 km deep into the enemy's logistical base.¹⁰

Figure 1 depicts a tank army echeloned for an attack. Note the small frontage assigned to the breakthrough unit (4 to 6 km) and the

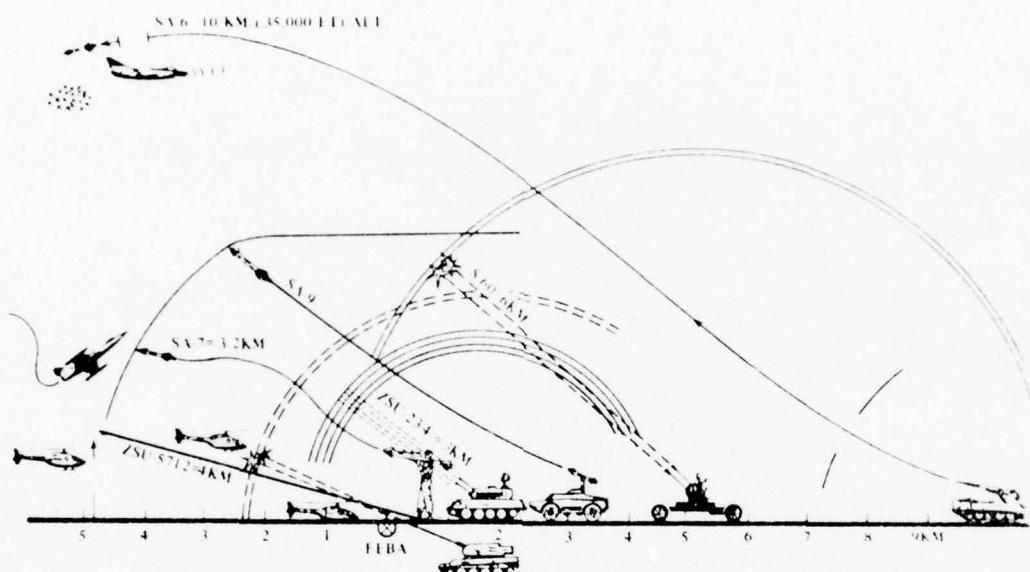
¹⁰ Department of the Army, Intelligence Threat Analysis Detachment, Military Operations of the Soviet Army (Washington: Government Printing Office, 1976), pp. 79-89.



SOURCE: [U.S. Army Combined Arms Combat Development Activity], "Defense," Chap. 5 of "Brigade and Division Operations," FM 71-100 (Draft) (Fort Leavenworth, Kans., 21 September 1976), p. 5-9. (USAGSC student handout.)

Fig. 1. Tank Army Echeloned for Attack

massive artillery support. The army moves under the protection of a mobile air defense umbrella (see Fig. 2).

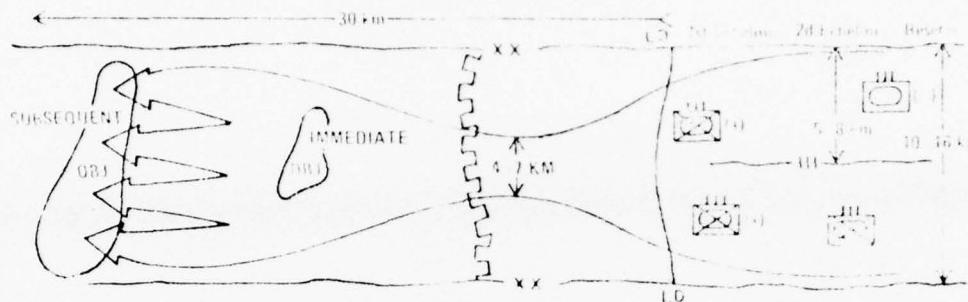


SOURCE: [U.S. Army Combined Arms Combat Development Activity], "Defense," Chap. 5 of "Brigade and Division Operations," FM 71-100 (Draft) (Fort Leavenworth, Kans., 21 September 1976), p. 5-10. (USACGSC student handout.)

Fig. 2. Air Defense Umbrella

The Soviets depend on a close integration of all branches in order to decisively apply maximum combat power. The basic tactical unit for sustained operation is the motorized rifle division (MRD). It is an extremely powerful unit that consists of artillery, infantry, and tanks. Artillery augments the firepower, while tanks provide maneuver and momentum. The air army provides a deep penetration capability to attack nuclear strike assets, command and control centers, and the air defense

system. The tactical aviation operates beyond the artillery and the air defense umbrella.¹¹ Figure 3 illustrates the MRD echeloned for attack.



SOURCE: Department of the Army, Intelligence Threat Analysis Detachment, Military Operations of the Soviet Army (Washington: Government Printing Office, 1976)

Fig. 3. Motorized Rifle Division Echeloned for a Breakthrough

The division masses for the breakthrough in a very small sector of 4 to 7 km that is supported by massive firepower. Approximately 325 tanks are in a tank division and 255 tanks are in a motorized rifle division. The tanks and motorized infantry attack directly behind a formidable artillery barrage. An aggressive advance emphasizes speed and shock over fire and maneuver. A high tempo is maintained by day and night operations. Heavy losses are accepted to maintain momentum.¹²

Yom Kippur War

At 2200 on 6 October 1973, Egypt and Syria launched a surprise two-front attack on Israel. Syria attacked in the north through the Golan Heights, while Egypt attacked in the south across the Suez through

¹¹ Ibid., p. 242.

¹² Ibid., pp. 113-19.

the Sinai Peninsula. The Yom Kippur War, as it is called, significantly reflected the latest Soviet tactical doctrine. Considering the amount of Soviet arms supplied to the Arabs since 1955 and the influence of Soviet thinking through their military missions, it is no surprise that the Egyptians and Syrians applied Soviet tactics. Hundreds of Arab officers trained in Russia, while Soviet military advisors participated in Syrian and Egyptian war games.¹³

Although the Arabs employed mass, firepower, and surprise, they differed in the application of Soviet tactical doctrine regarding the speed of the attack, the use of commando units, and the employment of the air force. The attack consisted of massive tank and motorized units that advanced under an air defense umbrella in the manner Soviet tacticians advocate. The combined Arab force that attacked totaled 100,000 infantry and more than 2,000 tanks against an initial Israeli holding force of 5,000 infantry and 400 tanks.¹⁴ According to Arab sources, 4,000 guns, rocket-launchers, and mortars opened on the Egyptian front and 1,500 opened on the Syrian front. Three hundred ground attack air sorties were launched in conjunction with the artillery attacks.¹⁵

The superior numerical advantage in men and equipment was even greater because of the sophisticated weapons employed and the achieved

¹³ Mohamed Heikal, The Road to Ramadan (London: Times News-papers, Ltd., 1975), pp. 83-88.

¹⁴ Charles W. Corddry, "The Yom Kippur War," National Defense 58, No. 324 (May-June 1976):507.

¹⁵ Heikal, p. 207.

tactical surprise. Israeli reliance on rapid mobilization permitted the Arabs to successfully penetrate the lightly defended Bar-Lev defensive line. The Syrians penetrated rapidly, but the Egyptians failed to maintain the momentum after crossing the Suez. The Russians advocate a continuous day and night operation to achieve objectives. Russian-supplied night devices enhanced the night combat capability. The Soviets believe in a very detailed operational plan that is enacted with violence and relentless determination. Typical of this concept was the Arabs' methodical preparation in training for a set attack based on echelons of tanks advancing regardless of casualties. To help maintain a high tempo of shock and violence, the Soviets also advocate the disruption of the enemy's rear area by airborne units and air force strikes. In this particular case, the Arabs' failure to significantly harass the Israeli's rear area permitted unrestricted mobilization and an eventual counteroffensive. In addition, the pause by the Egyptian Army, after it crossed the Suez, allowed the Israelis to concentrate their forces on the more immediate Syrian threat.

A truly weak link in Soviet tactical doctrine appears to be the employment of the air force as part of the combined forces. History has shown that Soviet trained pilots have failed to achieve a superior kill ratio. Interestingly, five MIG-21s manned by Russian pilots were easily shot down by Israeli F-4s on 30 July 1970. The Egyptians and Russians also crashed 68 aircraft in 1971 and 1972 during training flights.¹⁶

¹⁶ Heikal, pp. 162-79.

The Soviet-trained Arabs did not fare any better against the Israelis. They lost 334 aircraft in air-to-air combat against 3 losses for Israel.¹⁷ The apparent problems were tactics and training since the Arabs were well equipped with Russian front-line fighters: MIG-23 Foxbat, MIG-21 Fishbed, SU-11 Flagon A, and the SU-20 Fitter B.¹⁸ Certainly, the Arabs were greatly influenced by their devastating experience with the Israeli Air Force in the 1967 Six-Day War. The Arabs, hoping the air defense umbrella would decimate the Israelis, decided to hold back their air force in concrete revetments. Except for the 300 sorties during the initial attack, the Arab Air Force was mainly committed to rear area protection. The Arabs apparently had difficulties integrating their total air defense system, because 58 aircraft of their total 514 losses were shot down by their own forces. The total Israeli losses were 102 aircraft. The Arabs did apply Soviet tactics by initially attacking airfields, radar installations, headquarters, and camps, but the attacks were very limited in force and depth of penetration.¹⁹

The highly touted Arab air defense umbrella, similar to that employed by a Soviet combined arms army of four or five divisions, employed SA-2s, SA-3s, SA-6s, SA-7s, ZSU-23-4s, and ZSU-57-2s. The

¹⁷ Corddry, p. 509.

¹⁸ "Israeli Aircraft, Arab SAMs in Key Battle," n. 15.

¹⁹ Chaim Herzog, *The War of Atonement* (Boston: Little, Brown, 1975), pp. 267-60.

impressive air defense missiles and guns were employed in 46 Egyptian SAM battalions and 30 Syrian SAM battalions. Reported Israeli losses were 41 aircraft to SAMs, 31 to AAA, 3 to either SAMs or AAA, 3 to SA-7s, and 4 to either SA-7s or AAA.²⁰ The heavy Israeli air losses incurred in the first week were prior to an air defense suppression campaign and primarily during close air support missions. The missile suppression campaign eventually destroyed 56 of 62 missile sites--40 by air action and 16 by ground forces.²¹

The Yom Kippur War provided the Russians with a modern battlefield to test the practical application of their tactical doctrine. Sophisticated weaponry was used and the Soviets applied the mobile air defense umbrella concept that had been partially developed in Vietnam. The concepts of mass, firepower, surprise, shock, and continuous operation were employed. The war greatly accentuated the need for another look at fighter force training for a battle against the Soviets in Europe.

European Order of Battle

Soviet history has clearly indicated a goal of quantitatively and qualitatively improving their armed forces. According to General George S. Brown, Chairman, Joint Chiefs of Staff:

²⁰ Corddry, p. 508.

²¹ Jeffrey Greenhut, Military Aspects of the Israeli-Arab Conflict (Tel Aviv: University Publishing Projects, 1975), p. 241.

The Warsaw Pact appears committed to maintaining a demonstrated numerical edge over the North Atlantic Treaty Organization (NATO) in combat divisions, tanks, artillery, and combat aircraft while they modernize these forces to close the qualitative gap which has favored NATO.²²

The latest strategic studies estimate the overall Soviet strength at 49 tank divisions, 110 motorized rifle divisions, and 7 airborne divisions. Of the 58 divisions deployed forward in Eastern Europe, 31 are Soviet. The 31 Soviet divisions consist of 20 divisions (10 tank) in East Germany, 2 tank divisions in Poland, 4 divisions (2 tank) in Hungary, and 5 divisions (2 tank) in Czechoslovakia.²³ Table 1 presents relative strength figures between NATO and the Warsaw Pact.

The crack divisions in Eastern Europe are in permanent rigorous training, are constantly on the move, and are at a high level of preparedness. These divisions have the most modern equipment and are capable of attacking with very little warning. Figure 4 depicts the most likely and least likely invasion routes.

Qualitatively, the Soviets have dramatically narrowed the gap. The ground forces will eventually be modernized with the T-72 medium tank, self-propelled 122 mm and 152 mm artillery units, and the amphibious armored infantry combat vehicle (BMP). The SA-8 and SA-9 missiles

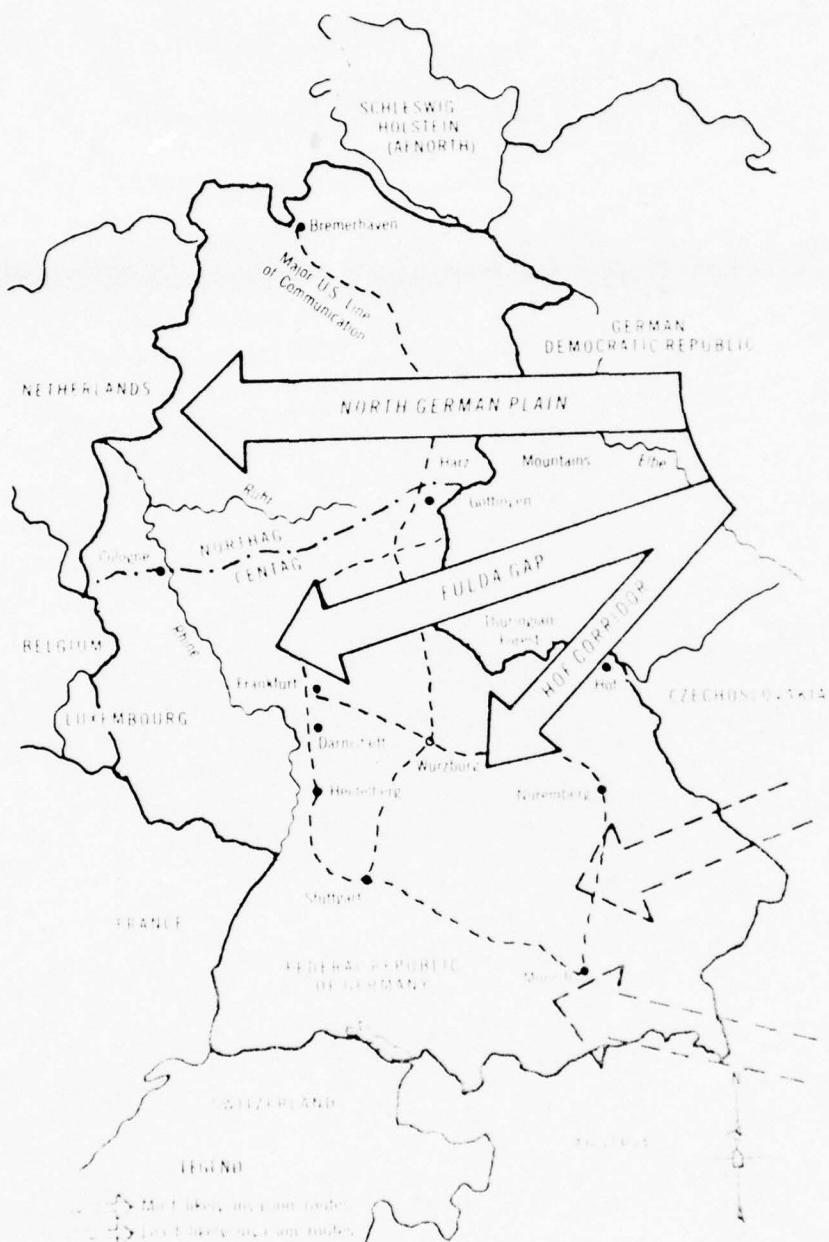
²²George S. Brown, "U.S. General Purpose Forces: A Need for Modernization," Commanders Digest, 27 May 1976, p. 1.

²³The Military Balance, 1975-1976 (London: International Institute for Strategic Studies, 1975), pp. 8-9.

TABLE 1.--NATO/Warsaw Pact Force Comparison
 [Manpower figures in thousands]

Organization	Manpower		Equipment	
	Ground	Air	Tanks	Aircraft
<u>NATO:</u>				
United States	198	41	2,100	280
Great Britain	55	9	650	130
Canada	3	2	30	50
Belgium	63	20	375	140
Netherlands	78	21	525	160
West Germany	345	117	2,650	550
Subtotal	742	210	6,330	1,310
France	58	—	325	—
Total	800	210	6,655	1,310
<u>Warsaw Pact:</u>				
Soviet Union	460	45	8,000	1,200
Czechoslovakia	155	45	2,600	450
East Germany	100	28	1,650	325
Poland	210	60	3,200	825
Total	925	178	15,450	2,800

SOURCE: *The Military Balance, 1975-1976* (London: International Institute for Strategic Studies, 1975), p. 102.



SOURCE: U.S. Army Combined Arms Combat Development Activity, The Leavenworth Assessment of the Warsaw Pact Threat in Central Europe, HQ 550-1 (Fort Leavenworth, Kans., 7 July 1976), p. IV-2.

Fig. 4. Possible Invasion Routes

will increase the lethality of the air defense umbrella.²⁴ The Soviet Air Force, which has been the weaker link in the combined arms force, has been significantly improved. The late model Fishbeds, Fitters, Floggers, and Fencers have substantially improved ranges, payload, avionics, and electronic countermeasures.²⁵ The new Soviet tactical aircraft provide a deep strike capability that can greatly deteriorate NATO's immediate reaction force.

In summary, the Soviets are oriented toward a blitzkrieg concept and rely on numerical superiority and massive firepower. The attacking army, under the protection of a mobile air defense umbrella, masses for a breakthrough on a small front. The attack is concealed by smoke and supported by massive artillery barrages of up to 100 tubes per kilometer. Airborne units simultaneously assault targets in the enemy's rear area. Tactical aircraft provide air superiority and attack ground targets beyond artillery ranges. The Soviets advocate a violent, relentless offensive, 24 hours a day, of all combined arms oriented toward the destruction of enemy forces. As in the past, they will accept heavy losses to maintain the momentum and achieve their objectives.

The United States still appears to have the edge in tactical aviation. The capability of a well-trained fighter force to preempt the

²⁴ Brown, p. 3.

²⁵ "USSR Pact and PRC General Purpose Force Capabilities," Commanders Digest, 29 April 1976, p. 5.

Soviet offensive can best be accomplished by first understanding their combined arms tactical doctrine. Once the concept is understood by the air tactician, combat power can then be best applied to disrupt and defeat an attack. A sudden attack will place heavy responsibility on the fighter force to protect and provide delaying time for the friendly ground forces to mobilize and counterattack.

CHAPTER III

CURRENT FIGHTER FORCE COMBAT TRAINING

How does the fighter force train for combat and is the training relevant to the Soviet threat in Europe? The preceding chapter partially addressed the subject by discussing Soviet tactics. This chapter provides information on current fighter force training.

A versatile and well-trained fighter force necessary to counter the Soviet threat is not developed overnight. Realistic combat training, innovative tactics, and controlled exposure to new concepts are necessary to developing an effective fighter force. A well-controlled program requires emphasis on basic fighter skill development plus the development of advanced tactics that can cope with the current threat. The European battle will require deployment responsiveness and the ability to employ the proper force mix in a high-threat environment. The aspects of current fighter force combat training addressed in this chapter are basic fighter training doctrine, continuation training, joint exercises, deployments, aggressors, and Red Flag.

Basic Fighter Training Doctrine

The designed operational capability (DOC) system dedicates squadrons, by type aircraft, to specific missions. Some examples are:

<u>Aircraft</u>	<u>Mission</u>
F-15	air superiority
F-5E	air superiority (used by the aggressor)
F-16 and F-4D/E	air superiority/air-to-ground
F-4G and F-105C	SAM suppression
F-111	air-to-ground (interdiction)
A-7 and A-10	air-to-ground CAS)
RF-4C	strike control and reconnaissance (SCAR)

Depending on a squadron's operational capability, both a primary and a secondary mission may be assigned. As mentioned previously, the squadron would require additional training in its secondary DOC prior to combat deployment. Under the DOC system a unit can devote more attention to specific skills that are required to perform the assigned mission.¹

The multipurpose F-4 and F-16 can be assigned air-to-air and air-to-ground missions. This dual capability gives the fighter force the flexibility to weight combat power on either end of the spectrum, depending on the tactical situation. The air-to-ground DOC includes both the interdiction and close air support missions. The F-4 and F-16 can perform in the close air support role, but they are better suited for interdiction missions. The F-111 has an exceptional all-weather deep interdiction capability. The A-7 and A-10 are particularly best

¹Department of the Air Force, F-4 Aircrew Training (Tactical Fighter), AFM 51-34 (26 April 1976), p. 1.

employed in the close air support role, in addition to search and rescue. The A-10's survivability may also make it an excellent choice for the FAC role along the forward edge of the battle area (FEBA).

The RF-4C is a reconnaissance aircraft that has recently assumed an expanded role of strike control and reconnaissance. In this capacity the RF-4C functions beyond the FEBA and leads strike flights to previously located enemy targets. The activities of the FAC and SCAR require a close integration to assure that fighter resources are effectively employed against real-time enemy targets.

The F-15 aircraft and aircrews are specifically employed in the Air Force's primary mission of air superiority. The F-4 and F-16 can augment the F-15 in this role, which can become particularly critical during the initial phase of hostilities. Depending on future commitments, the F-15 also has the designed capability to assume an air-to-ground mission.

The F-4G and F-105C aircraft are specifically designed for the increasingly important role of SAM suppression. Their effectiveness allows the other type aircraft the freedom necessary in accomplishing other missions.

Each squadron trains separately for its own mission, but also periodically trains with other units to improve coordination and tactics for fighter force packages. The mixed force training concept results in efficient management of resources, employment of a tactically sound force, and the maximum combat power at the critical time and place.

Continuation Training

An aircrew maintains a mission ready status through continuation training. This type training provides a basic building block that prepares the aircrew for more complex tactical exercises. Combat proficiency is maintained by flying a minimum number of sorties over a 6-month training cycle. Depending on the unit's DOC, certain training events are accomplished per sortie, and the aircrew also maintains qualification in air-to-air and/or air-to-ground gunnery.² This continuation training, designed to develop and maintain basic fighter skills, is normally accomplished at the unit's home station. Extensive ground training, to include current threat analysis and tactical planning, precedes the basic flying. The aircrew also develops a solid foundation in tactical formations and maneuvers to be employed against various air and ground threats. The majority of the training is in flights of two or four aircraft employed against simulated threats on a tactical gunnery range. During this continuation training the aircrews learn the fundamentals of maneuvering a small unit (a flight) against a specific threat. The aircrews also focus on improving their expertise in areas such as close air support with a FAC, interdiction with a SCAR aircraft, and dissimilar air combat training (DACT).

Ving headquarters exercises are interspersed in the training cycle to increase the scope and complexity of the training. Larger

²Ibid., pp. A-1 through A-7.

forces are then integrated and employed within the constraints of a particular scenario. The capability to surge the maximum amount of sorties in a minimum time span is also one of the options normally exercised. A very real example of an effective sortie surge was in the Yom Kippur War when the Israelis increased their combat potential by turning an aircraft four to five times in a day.

As in past history, the one area in continuation training that probably needs more emphasis is night training. Understandably, tactical night flying is difficult and, as such, is prone to produce more accidents. However, it can be debated that night training accidents probably occur from a lack of proficiency. Anyhow, the point is that night training is limited, very controlled, and rarely committed in support of army night exercises. As in Korea and Vietnam, the enemy will seek the path of least resistance by shifting to night operations. The Soviets practice night attacks to support their continuous operation concept. Although the fighter force has a night capability, additional emphasis is required on realistic air superiority and CAS training in a Soviet night attack scenario. Joint exercises in support of army units at night in a simulated high threat environment could help to highlight deficiencies and improve night tactics.

Joint Exercises

Joint exercises allow the fighter force to add yet another dimension, the ground maneuver unit, to the tactics practiced during

continuation training. The scenario becomes more complex in that it requires precise coordination and responsive command and control.

Some recent examples of joint operations are Brave Shield XV, Kangaroo II, and Cope Elite. Brave Shield XV, conducted by the U.S. Readiness Command in August 1976, included more than 16,000 Air Force, Army, and Marine personnel. The scenario tested command and control procedures and deployment/employment capabilities. Kangaroo II, in October 1976, included forces from Australia, New Zealand, and the United States. A major aspect was the establishment of a joint headquarters to coordinate the activities of U.S. Army, Air Force, Navy, and Marine units in conjunction with 11,000 ANZUS troops. Cope Elite, in September 1976, included A-7s deployed to Hawaii to provide close air support for Hawaii based units.³

Reforger 76 and Autumn Forge, conducted in Europe, improved area familiarization and presented real problems to the operating forces. In Reforger 76, the 101st Airborne Division (Air Assault) deployed to Europe and joined other United States and Allied forces in the field. The fighter force provided close air support to the deployed unit, as it would in a real situation. Allied Forces Europe initiated the Autumn Forge joint exercises to further test the command and control system and to adapt forces to the potential battle area.⁴

³"Exercises," *Air Force Times*, 3 November 1976, p. 53.

⁴Ibid.

A quantum jump in joint exercises was Red Flag 77-1, conducted in October 1976. The exercise included Army, Air Force, and Navy units performing in a very "real" simulated high threat environment. The participants included two reinforced tank battalions, A-10s, F-4s, B-52s, and Navy EA-6Bs.⁵ This emphasis on different service units operating together against aggressors skilled in Soviet tactics is highly relevant to the European scenario.

The joint operation concept in a Red Flag scenario must be further pressed to improve procedures, coordination, and mutual support. The joint air-land battle in Europe will rely greatly on what is happening now to create a highly integrated air-land fighting force. Intelligence processing and evaluation must be a joint effort to reflect a total picture of the enemy. It will become critical for the air and army tacticians to know the enemy and be able to fuse their knowledge to predict the enemy's actions. Limited fighter force resources can then be effectively employed in the battle.

Deployments

A surprise attack in Europe will require a fighter force in place to attrite and slow down the attacking forces. In addition, the fighter force must be reinforced by deployable forces as soon as possible. The fighter force has this capability and has proved it consistently in deployments to Europe and the Far East.

⁵Ibid.

Recent examples of fighter deployments to Europe include Crested Cap 76, Coronet Yankee, Coronet Redcoat, Coronet Tory, and Coronet Minuteman. During Crested Cap 76, August-October 1976, 96 F-4s deployed to and operated in the Federal Republic of Germany (FRG). Also, during that same time period, 6 F-105Gs deployed to Germany for Coronet Yankee. During Coronet Tory, September 1976, 6 F-111s deployed to England. Coronet Minuteman, September 1976, included 18 F-4Es deployed to Norway. For the first time, 18 A-7s were also deployed to the FRG in August 1976, during Coronet Redcoat.

The above examples indicate the fighter force has the experience and capability to deploy immediately to a potential trouble spot. Once in the theater, the force can be quickly integrated into the battle. In fact, fighter squadrons are evaluated on their deployment capability during periodic operational readiness inspections.

Aggressors

Three aggressor F-5E squadrons located at Nellis Air Force Base (Nevada), at Clark Air Base (the Philippines), and with the Royal Air Force (Alconbury, England) play the role of "the enemy." The key mission of the aggressor squadrons is to provide dissimilar air combat training (DACT), plus academic instruction, for the fighter force.

A typical aggressor detachment, consisting of 5 F-5E aircraft, 6 pilots, 2 GCI controllers, and maintenance support, deploys to a unit for one to two weeks. The initial training phase includes academic

instruction on the Soviet fighter pilot, Soviet aircraft, avionics and armament, battle arena, fighter formations, and tactics. The flying phase includes basic, intermediate, and advanced maneuvering. The basic phase is devoted to offensive familiarization in a one-versus-one situation. The objective is to introduce different turning rates and maneuvering problems against adversary aircraft (F-5E/MIG-21). The intermediate mission includes a 2-friendly versus 1-enemy situation to practice sequential attacks and mutual support. The advanced phase normally includes a 4-ship (friendly) combat air patrol working in hostile territory. The aggressors, under GCI control, utilize Soviet tactics and formations against the patrol. The scenarios vary according to unit expertise and imagination. Missions are extensively briefed and debriefed to provide maximum training.⁶ It should be noted that the air-to-air training is primarily oriented toward the enemy's fighters. The advent of the Hind helicopter and the enemy's emphasis on tactical heliborne and airborne assaults to insure rapid rates of advance will present a different problem to the air superiority fighters.

Overall, the aggressor program has established a central source of knowledge on Soviet air tactics and has significantly improved the air superiority capability of the fighter force. The success has been largely due to a well-trained aggressor force "using aircraft with comparable characteristics of the potential enemy aircraft and flown by

⁶Philippe Grasset, "Dissimilar Air Combat Training," International Defense Review 8, No. 6 (December 1975):826-27.

pilots who had extensively studied the enemy fighter pilot and were skilled in his tactics and fighting philosophy."⁷

The highly successful aggressor program suggests the possibility of also establishing a similar program for air-to-ground tactics. The complexity involved in coordinating the FAC, the SCAR, and the ground maneuver units with the flow of fighters into the battle arena is becoming very difficult. There should be a unit that serves as a central source of knowledge on the land battle. The unit should be familiar with enemy ground tactics, friendly ground tactics, and the functions of the FAC and SCAR as they integrate the fighter force in the ground maneuver scheme. A possible solution is discussed in Chapter IV and a recommendation is proposed in Chapter V.

Red Flag

All previous training by an aircrew is put to the test during advanced tactical training in Red Flag. Red Flag is the ultimate in realistic tactical combat training. Squadrons deploy to Nellis Air Force Base, Nevada, for several weeks to operate in a combined enemy air and surface threat environment. The exercise is designed to be the most realistic training situation possible for aircraft, aircrews, and support personnel. The exercise is a controlled self-learning situation in which aircrews apply their previous training in the various scenarios.

The tactical ranges include every conceivable target, such as airfields, SAM sites, industrial complexes, railroads, and convoys.

Ingressing friendly forces are subject to attack by aggressor aircraft under GCI control. The fighters also have to react to the ground threat, which includes ground radar emitters that generate electronic emissions similar to those from enemy equipment. Mixed forces of air superiority, air-to-ground, and SAM suppression aircraft are employed to counter the threats and penetrate to the targets.

The missions of CAS, interdiction, SCAR, and air superiority are practiced in high-threat scenarios. The inclusion of tank forces in Red Flag 77-1 added another dimension. Flight leaders are free to develop tactics and use their initiative to react to the daily situations. Pilots who are declared "shot down" by referees are periodically selected to be inserted into the battle area for escape and evasion. The aircrew then becomes part of a search and rescue effort in the high-threat environment.⁸

In summary, the fighter force training program is very comprehensive and has made some dynamic changes in recent years. In particular, Red Flag and the aggressor squadrons are two of the most innovative and productive programs that have been developed for the fighter force.

⁸Terry Arnold, "Red Flag, TAC's Realistic Approach to Readiness," Air Force Magazine, January 1977, pp. 40-44.

CHAPTER IV

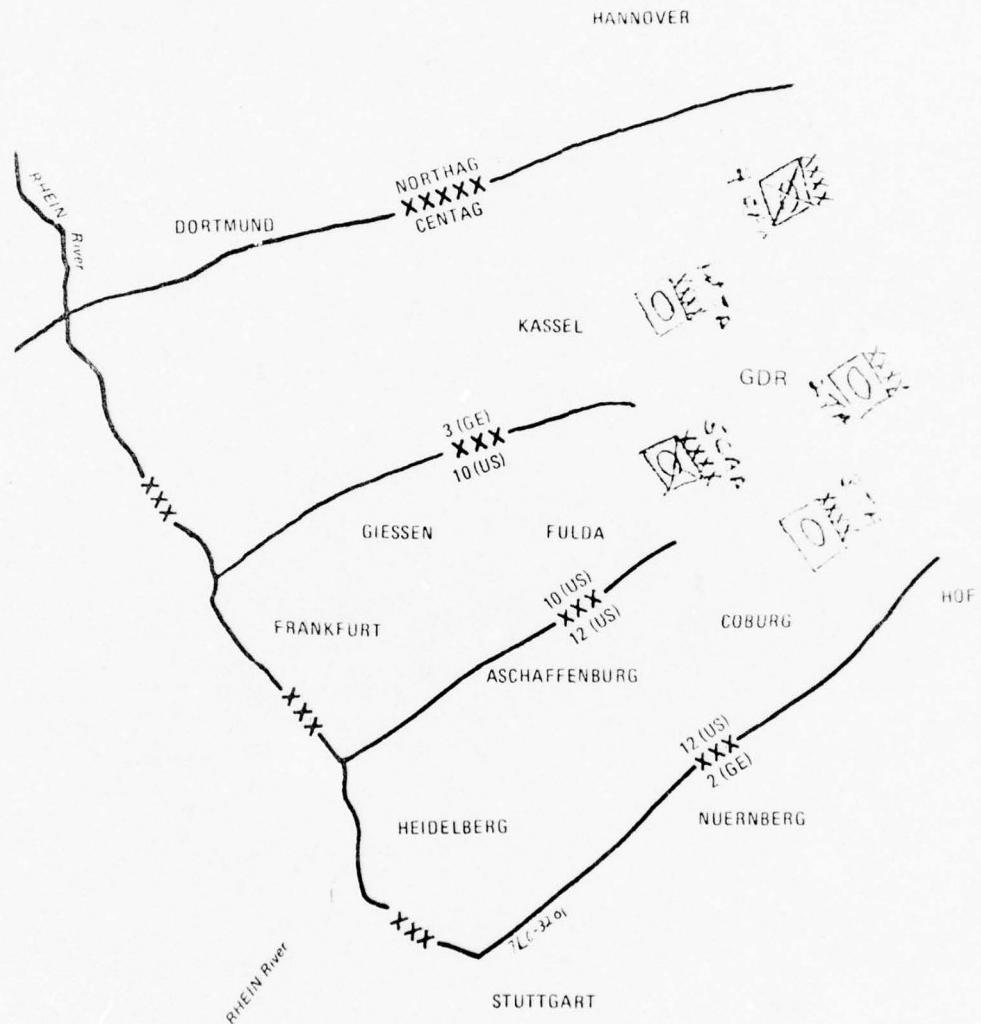
EUROPEAN "FIRST BATTLE" SCENARIO

The Battlefield

Unit dispositions for the European "First Battle" scenario are as depicted in Figure 5. Forces opposing the 10(US) Corps are elements of the enemy's First Zapadnian Front. The Front is composed of two combined arms armies, three tank armies, and a tactical air army. Nine of the 23 enemy divisions will be employed against the 10(US) Corps. The enemy's strategic reserve also includes up to five airborne divisions that could be committed against the 10(US) Corps sector.

The 10(US) Corps is located in the area referred to as the Fulda Valley (see Fig. 6). The area is characterized by several predominant hills and mountain ranges. Numerous small villages are interspersed in the rolling hills and heavily forested areas. Overall, the area offers excellent terrain masking for fighter operations.

Weather is a very dominant factor in this part of Germany. Low visibility due to fog and haze is normally the worst problem. The period from October through February offers the most challenging flying weather. Visibility is reduced below 2-1/2 miles between 20% and 50% of the time, particularly at lower elevations. Just as it did in World War II, the weather can play a significant role in hindering the



SOURCE: U.S. Army Command and General Staff College, Forward Deployed Force Operations (European Setting), Course M3161 (1 July 1976), p. P1-8.

Fig. 5. First Zapadnian Front



Fig. 6
Fulda Valley

employment of tactical airpower.

Soviet Air-Land Attack

At first light on 8 December 198?, with less than 48 hours warning, the Soviets launch an offensive along the Zapadnian Front. One of the main attacks is in the 10(US) Corps sector with the objective of capturing Frankfurt and eventually securing the bridges on the Rhine River.

The overall Soviet employment concept is depicted in Figures 7 and 8. The first echelon of the 1st Army Group consists of the 5th CAA, while the second echelon contains the 2d Tank Army. The 5th CAA launches the main attack with three motorized rifle and two tank divisions. The 2d Tank Army is the exploitation force. Located 100 kilometers behind the first echelon, its major objective is to completely destroy the opposing forces and secure Frankfurt.

The three motorized rifle divisions in the 5th CAA mass on a 10-kilometer front for a breakthrough. The 5th CAA has two tank divisions in the second echelon, 30 kilometers to the rear. Once the breakthrough is achieved, the shoulders will be secured to allow the two tank divisions to pass through the gap and link up with the heliborne assault at Alsfeld (see Fig. 8).

The breakthrough attack is supported by massive artillery of up to 100 tubes per kilometer that range 20 kilometers beyond the line of contact (LC). The division artillery groups (DAG), deployed 4 to 5

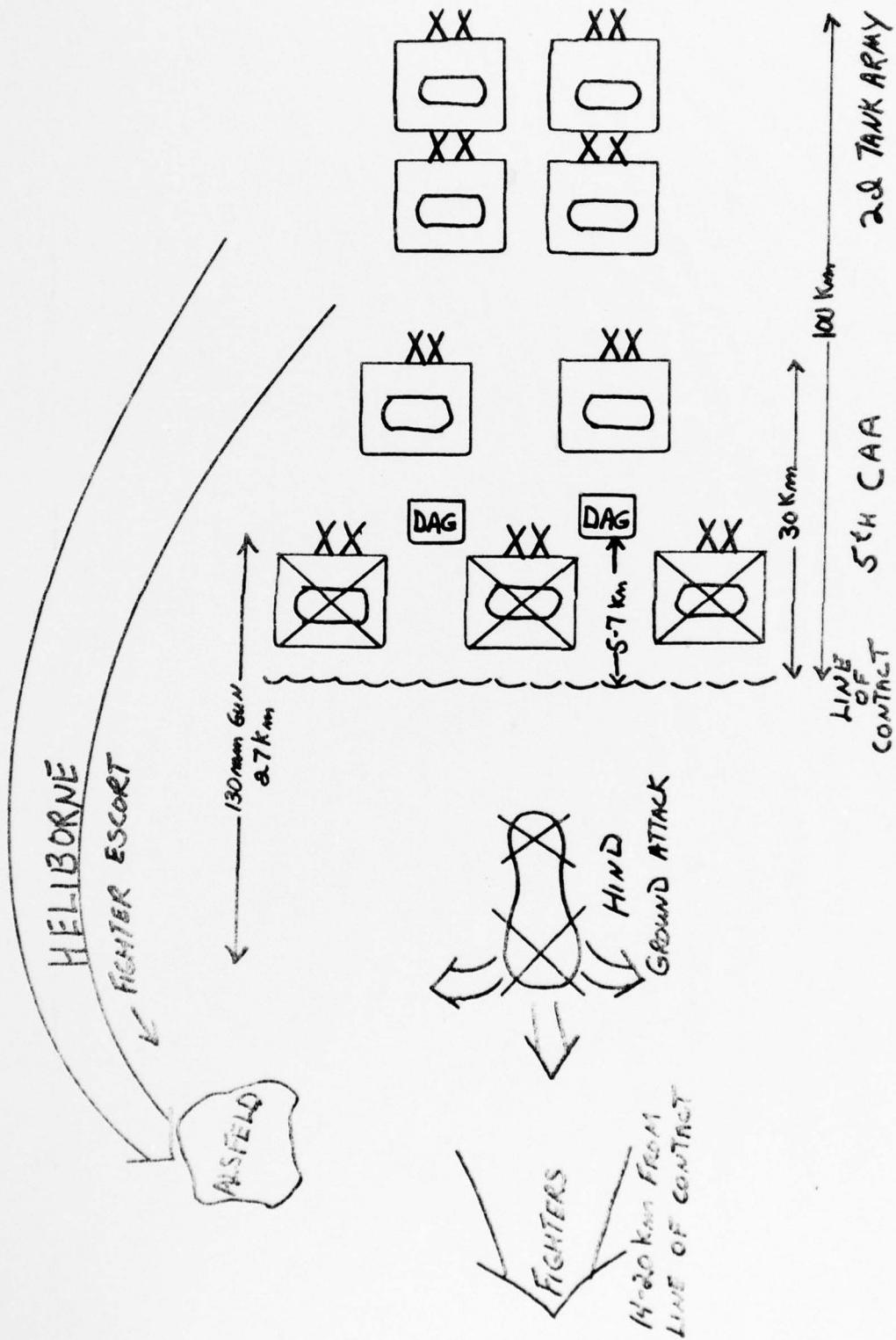


FIG. 7. Initial Attack

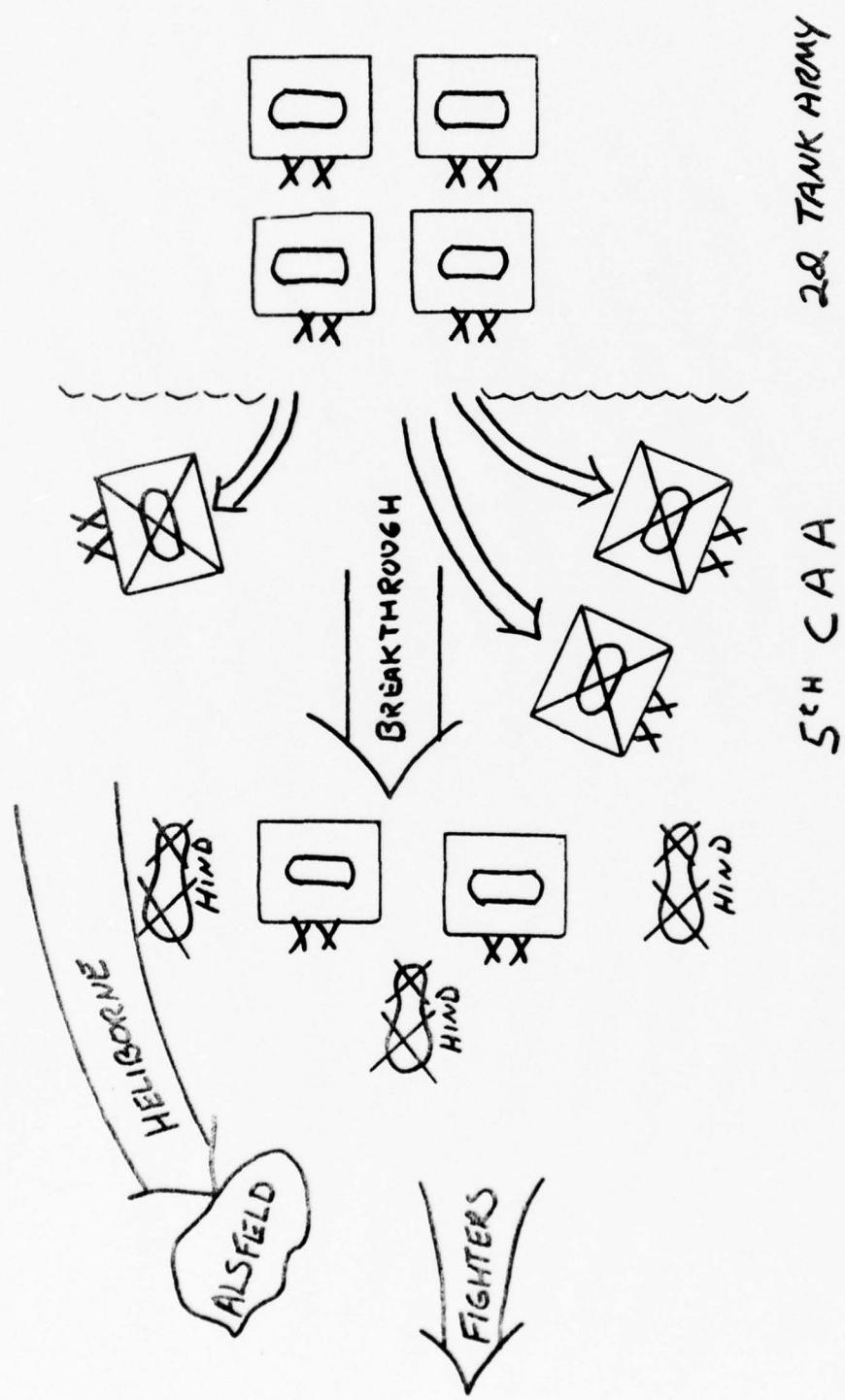


Fig. 8. Breakthrough

kilometers from the LC, have a range of 21 to 27 kilometers with the 122 mm missile rocket launchers (MRL) and the 130 mm guns.

Considering the massive artillery fire, the Soviet fighters logically employ beyond artillery range on preplanned and armed reconnaissance missions. The first wave of fighters concentrates on neutralizing air bases, nuclear sites, radar sites, and headquarters. The second wave is committed to troop concentrations, supplies, and lines of communications. Air defense fighters are closely integrated with the SAM/AAA umbrella to protect the attacking forces. The fighters are also tasked to protect the heliborne assault.

The MI-24 Hind attack helicopter, armed with antitank weapons, 57 mm rockets, and 12.7/23 mm guns, is employed in various roles. One role is in direct support of the troops along the LC. The Hind can disrupt strong tank forces beyond antitank direct fire range. Another mission is with the breakthrough tank forces in a forward reconnaissance and direct support role. This is very similar to the concept General George S. Patton used during the invasion of Normandy. The Ninth Tactical Air Force provided fighters in direct contact with Patton's tanks.¹ The Hind is also assigned the unique role of using its 12.7 and/or 23 mm guns to destroy United States attack helicopters.²

¹ Army Air Force, "Air-Ground Teamwork on the Western Front" (September 1945), pp. 5-8.

² "Soviets Developing Attack Helicopters, Missile, Tactics," Aviation Week and Space Technology, 1 March 1976, p. 16.

In accordance with the Soviet doctrine of attacking in all dimensions, a heliborne force escorted by fighters and Hinds, is employed approximately 30 kilometers deep to capture the communications center at Alsfeld. By maintaining a constant and violent pressure throughout the 10(US) Corps sector, the Soviets hope to unbalance units of the corps and quickly penetrate the defense.

Friendly Forces Response

The scenario presents several interrelated tactical problems that occur simultaneously. The major problems confronting the tactical air force commander are:

- The enemy fighter attacks.
- The heliborne penetration.
- The attacking enemy ground forces (5th CAA and 2d Tank Army).
- Reinforcement with deployed forces.
- Night operations.

Although the friendly fighters will respond simultaneously to the various tactical situations, for the purpose of discussion, each one is analyzed separately.

Enemy Fighter Attacks

Obviously, one of the highest priorities is to immediately establish air superiority behind the forward edge of the battle area (FEBA). The enemy fighters attack in massive waves in an attempt to saturate the hawk and radar defense systems (GCI). Supported by

extensive electronic countermeasures (ECM), the enemy fighters attempt to establish air corridors that are relatively free of air and ground defenses. Once the ground defenses are suppressed, the Soviet air defense fighters can patrol the corridors to protect the ingressing ground attack fighters. Prime targets are air bases, command and control centers, nuclear sites, radar sites, and missile sites. Further attacks include troop concentrations, supplies, and so forth.

The F-15 air superiority fighter is well equipped to operate against the Soviet air threat. Besides being effective against medium and high threats, the F-15's radar can also pick up low penetrating aircraft in ground clutter.³ The F-15 is capable and the aircrews are well trained to perform in this type environment. The aggressor program described in Chapter III is the type of innovative training effort that has assured a viable air superiority program.

The main problem is a target-rich situation that will saturate the air defense system. It must also be assumed that Soviet ECM will effectively eliminate a large percentage of the radar control capability. Numerous air targets combined with a degraded GCI capability pose a unique situation for the F-15 aircrews.

The saturation problem can be somewhat alleviated by complementing the F-15s with F-4s and F-16s. These mixed flights can then work together in an assigned sector. The F-15 can use its systems to acquire

³"Operational Aspects of the F-15 Eagle," International Defense Review 8, No. 3 (June 1975):363-64.

penetrating targets and either use its own stand of armament or direct the F-4s and F-16s to the target. The lack of GCI control can be alleviated by assigning sectors based on map grids. The sectors can be further divided by altitude blocks to provide better coverage against the enemy fighters.

Each sector should be tied to a forward deployed radar that can operate autonomously in the event the main GCI system is degraded. The assigned controllers should be thoroughly familiar with their area and should continuously train with the air superiority fighters who are assigned responsibility for the sector.

The F-15 flight leaders must be able to aggressively manage the various mixes and control the air situation in their sector. In effect, the F-15 aircrew will be an extension of the Airborne Warning and Control System (AWACS) and will become a GCI controller or director. The air superiority fighters cannot rely totally on ground GCI sites or AWACS in an intense combat situation. They must be flexible and they must use individual initiative.

Heliborne Penetration

The heliborne assault with reserve airborne forces was initiated at first light with the attacking forces. The Alsfeld communications center controls the vital lines of communication that are necessary for shifting forces. The heliborne assault, in the midst of all other enemy air activity, is another challenge for the air superiority fighter. The

F-15 is confronted with two different problems: the fighter escort and the Hind helicopters. The enemy fighter escort, although a problem, has been addressed in current training scenarios. For example, in simulated testing against the MIG-23 Flogger and the MIG-21 Fishbed, the F-15 won 46 of 47 engagements.⁴ The Hind helicopter, however, is a unique problem that deserves more attention.

The Navy's experience with the Marine Harrier V/STOL aircraft has highlighted the problem. During recent tests, the Harrier outfought the F-14s in 6 of 16 engagements, losing only 3 and with the other indecisive.⁵ The Soviet Hind helicopter can present the same difficulties with its acceleration/deceleration capability and its excellent low-speed maneuverability. According to the latest publications, the Hind helicopter is being equipped with 57 mm rockets, swatter antitank weapons, a 12.7 mm gun, and a radar controlled 23 mm gun. A stand-off missile is also being developed.⁶

Another situation to be considered is one in which the heliborne assault is made in adverse weather conditions without a fighter escort. The F-15 has an all-weather capability to counter the penetration; however, the rules of engagement or the tactical situation may preclude the use of stand-off armament and may require a visual identification

⁴"Operational Aspects of the F-15 Eagle," p. 363.

⁵"Jane's Aerospace Review, 1976/77," Air Force Magazine, January 1977, p. 34.

⁶"Soviets Developing Attack Helicopters, Missile, Tactics," p. 16.

pass. The F-15 or any other high performance aircraft would have a definite problem in attempting to maneuver in the Fulda's mountainous terrain in adverse weather conditions against the Hind helicopter. A possible solution is for the F-15 to work in conjunction with A-10s in the manner it works with F-4s and F-16s. The A-10 is slower and more maneuverable at low energy states. It can identify the formation and allow the F-15 to employ its stand-off missiles. If that type attack cannot be accomplished, the A-10 can at least maneuver against the Hind and employ its firepower to disrupt the formation. Even if the above operation is not feasible, the A-10 will still have to be aware of the Hind helicopter as a threat, particularly during close air support missions along the FEBA.

Whether or not the proposed concepts are viable, the Soviet emphasis on the helicopter deserves attention. The situation should be addressed in training scenarios and subsequent tactical employment concepts developed.

As indicated in Figure 9, the 5th CAA is carrying the brunt of the Soviet attack and will have an immediate effect on the battle. The 2d Tank Army, the exploitation force 100 kilometers back, can influence the battle within a 24-hour period. During the attack, the United States forces are delaying from the LC to the FEBA, thereby forcing the Soviets to deploy their formations. Where, then, should friendly fighters be committed to best influence the battle? For the purpose of discussion, the areas where ground attack fighters can concentrate their

efforts may be seen in Figure 5 (page 44). The areas are:

- The line of contact (765 tanks).
- The second echelon of the 5th CAA (650 tanks).
- The 2d Tank Army (1,300 tanks).

The air commitment in one or more areas depends in part on the situation of friendly ground forces and the amount of available air sorties.

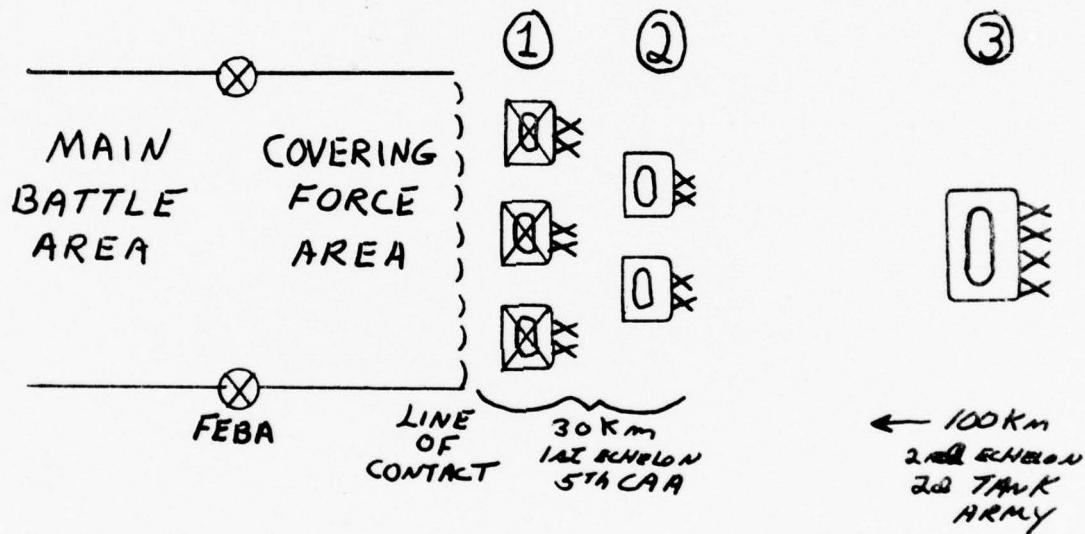


Fig. 9. Soviet Echelons

The sorties committed along the line of contact are the most vulnerable to enemy ground fire, and it can be anticipated that they may suffer a high probability of aircraft losses. This became readily apparent to the Israelis in the 1973 war. As the covering force delays to the FEBA the situation becomes extremely fluid and confusing and requires a detailed integration of air and ground forces. The rapidly changing situation, with forces in close contact, greatly limits the tactics and munitions that can be employed.

It would be preferable to limit the air sorties along the LC until the covering force delays to the FEBA in the main battle area. During the delaying tactics the fighters can best be employed against the second echelon of the 5th CAA, 30 kilometers behind the line of contact, and/or against the 2d Tank Army, 100 kilometers back. This would require less detailed coordination with the ground forces and would allow more freedom in employment tactics. This selective commitment may not be possible if the friendly ground forces are unable to hold at the FEBA. In such an event, air sorties must be committed along the FEBA to help stabilize the situation.

The best combat results can be achieved by committing the ground attack sorties against the 2d Tank Army. The ground attack fighters can then be employed with F-4G Weasels, EF-111 electronic warfare aircraft, and F-15/F-16 air superiority fighters to form a closely integrated force package. There would be more freedom to maneuver and a better capability to concentrate airpower against the exploitation force. It is also the optimum employment during the initial confusion generated by the Soviet attack. In any event, the 2d Tank Army, with its 1,300 tanks, must be severely attrited to reduce the momentum and future potential of the attacking forces.

The optimum commitment of ground attack sorties against the First Zapadnian Front to provide the best kill effect and offer increased survivability is listed in order as follows:

- The 2d Tank Army (100 kilometers).

- The second echelon of the 5th CAA (30 kilometers).
- The first echelon of the 5th CAA (line of contact).

Once a particular area is selected for commitment, airpower should be concentrated to inflict maximum damage. Concentrated airpower does not necessarily mean a large unwieldy formation of aircraft. Instead, it means a maximum sortie flow over a short time span in a particular area. The other side of the coin is a tendency to patch all holes with a piecemeal commitment. This inevitably results in higher losses and fails to decisively affect the battle.

The various echelons of the attacking force and the ground attack fighter options have already been discussed. The next problem is what type of control concept should be used to assure that the fighters are employed at the right time and in the right place. A possible deficiency in the present close air support training is the lack of a highly integrated FAC/SCAR system that provides for timely information and coordinated effort in the battle area. Figure 10 illustrates a possible employment concept.

The SCAR, equipped with the RF-4C, can be committed from the second echelon of the 5th CAA (30 kilometers) to the 2d Tank Army and beyond. The second echelon of the 5th CAA is included because it is a grey area that depends on the FAC's survivability. In any event, the SCAR should be projected farther out with a priority of commitment against the 2d Tank Army. For increased loiter time and maneuverability, consideration should be given to eventually equipping the SCAR with

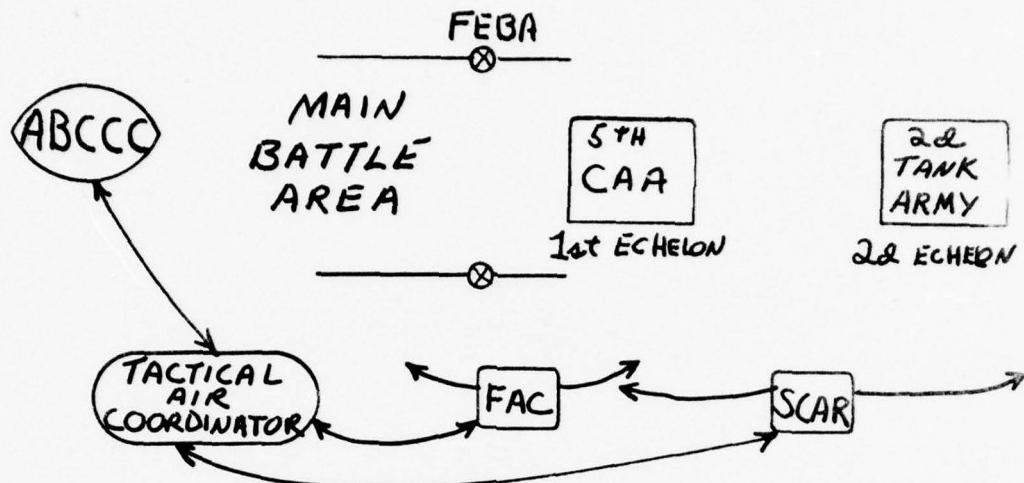


Fig. 10. FAC/SCAR Employment

a two-seat version of the F-15 aircraft. The SCAR should also have the capability to direct close air strikes as necessary to complement the FAC and provide a little more flexibility.

The FAC's concern is primarily with the first echelon, the 5th CAA, since it immediately affects the friendly ground forces. The FAC and the ground commander are ultimately concerned with the 2d Tank Army, but the immediate priority is along the LC and the FEBA. The present tactical air control system provides for both a ground and an airborne FAC. The ground FAC is greatly limited by how far he can see. The airborne FAC has better maneuverability and a greater visibility of the battlefield. His survivability in the present O-2 and OV-10 aircraft is highly suspect, particularly if he is responsible for the second echelon of the 5th CAA. One possible solution is to equip the FAC with a two-seat version of the A-10 ground attack fighter.

The A-10 can improve the FAC's survivability and his ability to

work beyond the FEBA. Also, coordination and continuity can be enhanced by using a common aircraft, the A-10, for the FAC and close air support missions. An A-10 fighter pilot, after gaining experience in a squadron, can be rotated on a one-year basis to an A-10 FAC assignment and then returned to A-10 fighters. The transition time would be minimal and the FAC would be well versed in the A-10's tactics. The A-10 FAC will also be directly linked to the ground forces to assure a coordinated effort on the battlefield. This constant interchange is absolutely necessary since the A-10s will be closely integrated with maneuver forces, artillery suppression, and antitank helicopters.

The A-10 FACs and fighter pilots should become experts on the Soviet Army and its employment concept. They can become a central source for close air support tactics against the Soviet Army, just as the American Aggressor Force has become on Soviet air tactics. During the periodic FAC/fighter joint training accomplished in squadrons, the A-10 FACs can present the latest Soviet ground tactics and ideas to counter the forces and survive. Ideally, this team would consist of FACs, SCARs, and Army liaison officers. The group would deploy as one package to teach and train ground attack fighter squadrons the latest ground attack tactics against the Soviet Army offensive.

The activities of the FAC and SCAR must be effectively coordinated to assure the best allocation of air sorties at the right time and in the right place. There is a distinct possibility that the airborne command post (ABCCC) may not be able to control the situation

effectively due to saturation or electronic warfare activities. If so, a tactical airborne coordinator can be used to coordinate the FAC and SCAR activities. Just as the F-15 air superiority pilot becomes an extension of AWACS, the tactical airborne coordinator becomes an extension of the ABCCC. The tactical airborne coordinator will be on the scene and better able to control the flow of sorties into the battle area. He could be another very experienced FAC or SCAR. As such he would be equipped with a two-seat A-10, an RF-4C, or an F-15 for maneuverability and loiter time.

By using the terrain and knowing the disposition of enemy forces, the FAC and SCAR can survive on the battlefield. Their knowledge and experience can be employed to increase the survivability of friendly ground attack aircraft. To be effective, however, the efforts of the SCAR and FAC must be closely integrated in their assigned sectors.

Deployed Forces

The Soviet attack launched with less than 48 hours notice requires immediate reinforcements for the European based fighter units. As mentioned in Chapter III, the tactical air force presently has an excellent deployment capability that is constantly exercised for various contingencies.

It must be assumed that the Soviets are well aware of the normal deployment routes to Europe. Their sudden emergence as a sea power

could cause problems for the deployment forces. For example, the Soviets could strategically place a Soviet task force on the deployment route to provide intelligence and act as a blocking force. The dep' yed squadrons would be extremely vulnerable to the Soviets' anti-air missile capability. This possibility, of course, requires self-protection measures and close coordination with the U.S. Navy for the needed surveillance and protection. One option would be to include EF-111s and F-4Gs in the deployment force.

Once the deployed fighters land in the theater, they are very time-limited to become familiar with the terrain and the battle situation. Hopefully, prior training on the area will alleviate some of the problems. In any case, a large amount of the burden for assisting the new aircrews rests on the FACs and SCARs. They must know the terrain in detail and they must be well indoctrinated on the disposition of forces. The FACs' and SCARs' knowledge of the enemy and their experience in the battle area will be invaluable to the incoming aircrews on their first missions.

Night Operations

In accordance with Soviet doctrine, the First Zapadnian Front continues the offensive throughout the night. Friendly fighters must be prepared to operate at night just as much as during the day. It may be necessary to dedicate fighter squadrons solely to night operations to keep up with the Soviet tempo.

Operations along the FEBA are complex and require close coordination with the ground forces. As mentioned previously, fighter operations beyond the FEBA against the second echelon of the 5th CAA and the 2d Tank Army are less restricted. If the breakthrough occurs at night, however, the units in close combat in the main battle area may require immediate close air support.

The ground attack aircraft must be able to maintain constant pressure at night. The A-10 can work close to the FEBA, while the F-111 can be employed farther out. The F-16 can cover either area to provide additional firepower.

To improve night operations, the two areas that must be exploited are aircraft night capability and aircrew training. Aircraft capability is presently being improved with advanced technology. Aircrew night training is the area that deserves added emphasis. Right now, because of numerous established training requirements, a very small portion of a squadron's training is devoted to night operations. Since it is virtually impractical to devote a squadron entirely to night operations, there must be another method for rapidly expanding a squadron's night expertise.

There must be a cross-tell of night operational experience and a development of a central source for night tactics. The Red Flag operation in Nevada can become this central source by developing night scenarios and keeping track of the ideas and tactics developed. A squadron can be employed in a week of night operations at Red Flag. Prior to

their employment, they can become night current and totally oriented toward night operations. During the Red Flag scenario, they can check equipment, develop tactics, and highlight problem areas. The results can be documented and disseminated to the tactical forces. Accomplishing this periodically will greatly improve the night operation capability and will develop a central source of information for future operations.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The Soviet forces in Europe have dramatically modernized their equipment and are the most heavily armed in the world. The United States tactical air force has responded with increased emphasis on readiness and realistic training. The problem this thesis addressed is whether the current combat training of United States tactical fighter forces relevant to the Soviet threat is appropriate to engage Soviet forces successfully in the event of a sudden and massive attack in Europe.

Chapter II is a review of literature on Soviet tactics and it also views the present order of battle in Europe. Chapter III is an examination of the current United States tactical fighter force combat training. A limited scenario of the "First Battle" in Europe is proposed in Chapter IV.

Conclusions

The general conclusion of this thesis is that the current combat training of United States tactical fighter forces is excellent. The recent emphasis on readiness has definitely made the training relevant

to the threat. The training in most cases is appropriate to successfully engage Soviet forces in the event of a sudden and massive attack in Europe. There are, however, several areas that require additional emphasis and improvement.

The air superiority training is undoubtedly the best in the world. Due to the probability of saturation by the enemy, more emphasis is needed on flight training with a mix of the F-15, F-16, and F-4. The emergence of the Hind helicopter in various roles and equipped with a radar controlled 23 mm gun and a stand-off missile requires additional thought and training to counter the Hind.

The role of the forward air controller (FAC), strike control and reconnaissance (SCAR), and ground attack fighter employed against the Soviet offensive concept needs additional clarification. There are several grey areas due mainly to a lack of detailed understanding of Soviet Army tactics. There is definitely a need for closer integration and joint training to solidify the fighter/FAC/SCAR concept.

Fighter deployments to Europe should not be merely considered a logistical problem of moving aircrews and equipment from Point A to Point B. In the light of the Soviet naval buildup, the deployment must be heavily concerned with the tactical problem.

The Soviet emphasis on a continuous 24-hour offensive operation will require extensive fighter night operations. There is a need to develop a central source for night fighter tactics that can be readily expanded and disseminated to dedicated night squadrons.

Recommendations

Mixed air superiority flight training programs with the F-15, F-16, and F-4 should be established. The concept of establishing mixed fighter wings, such as one F-15 squadron and two F-16 squadrons, on the same airfield would facilitate continuous training programs. An evaluation would be required to determine the optimum logistical and tactical mix.

A special study is needed on the Hind helicopter's capability and its employment concept. Countermeasures need to be developed and training programs need to be established. Red Flag can be a medium for evaluating the Hind employment by using U.S. Army Cobras in conjunction with a tank force. Besides evaluating a pure helicopter versus fighter situation, a more extensive scenario, as in Chapter IV, should be evaluated.

A Soviet air-land team, similar to the "Aggressors," should be established to emphasize the ground attack fighter employment. The team should consist of an intelligence officer, an Army liaison officer, three FACs, and two SCARs. They should be well versed in Soviet Army and U.S. Army tactics. During periodic deployments to fighter wings for training, the team can instruct on Soviet systems and tactics, United States countermeasures, and current employment concepts. The program should develop a better picture of Soviet employment tactics and should facilitate better FAC/SCAR/fighter integration with United States ground forces.

Fighter deployments should always include a threat scenario that includes Soviet naval forces. Besides coordinating with United States naval forces, the deployed fighters should have their own self-protection. A fighter squadron should not be deployed as a pure force, 24 A-7s for example, but should also include a tactical mix with EF-111s and F-4Gs.

Red Flag should become a central source for developing night fighter tactics against the Soviet employment concept. A squadron should be well prepared at its home base with two weeks of night flying and then deployed to Nevada for a Red Flag night scenario for at least a one-week period. New equipment can be evaluated, and employment concepts can be verified and improved for future operations.

The Soviets will eventually close the technological gap and produce equipment that is the same as or better than that produced by the United States. Combat training that is innovative, realistic, and approached with an open mind may be the significant edge the United States tactical air force will have over the Soviets.

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